

**System and Method for
Solving a Large System of Dense Linear Equations**

ABSTRACT

A method and system for solving a large system of
5 dense linear equations using a system having a processing
unit and one or more secondary processing units that can
access a common memory for sharing data. A set of
coefficients corresponding to a system of linear equations
is received, and the coefficients, after being placed in
10 matrix form, are divided into blocks and loaded into the
common memory. Each of the processors is programmed to
perform matrix operations on individual blocks to solve the
linear equations. A table containing a list of the matrix
operations is created in the common memory to keep track of
15 the operations that have been performed and the operations
that are still pending. SPUs determine whether tasks are
pending, access the coefficients by accessing the common
memory, perform the required, and store the result back in
the common memory for the result to be accessible by the PU
20 and the other SPUs.